Claims 1-8 (Cancelled)

I claim:

9. A method of forming an anodic oxide layer on a surface of aluminum or an aluminum alloy, being characterized by performing an anodic oxidation treatment by using a bath liquid which involves an aqueous solution containing 250 gr/l to 350 gr/l of sulfuric acid and 15 gr/l to 25 gr/l of nickel sulfate under the following conditions:

(a) bath liquid temperature: -10°C to +25°C;

(b) voltage: DC 100 V to 200 V; and

(c) current density: 0.5 A/dm^2 to 20 A/dm^2.

10. The method of forming the anodic oxide layer on the surface of aluminum or the aluminum alloy according to Claim 9, being characterized by using a bath liquid further added with a low polymerization acrylic resin composition in the range of from 280 gr/l to 320 gr/l.

11. The method of forming the anodic oxide layer on the surface of aluminum or the aluminum alloy according to Claim 9, being characterized by using a bath liquid with tartaric acid therein in the range of from 5 gr/l to 15 gr/l.

12. The method of forming the anodic oxide layer on the surface of aluminum or the aluminum alloy according to Claim 10, being characterized by using a bath liquid further with tartaric acid therein in the range of from 5 gr/l to 15 gr/l.

13. The method of forming the anodic oxide layer on the surface of aluminum or the aluminum alloy according to Claim 9, being characterized by performing an anodic oxidation treatment under the following conditions:

(d) bath liquid temperature: -10°C to -5°C;

(e) voltage: DC 130V to 170V; and

(f) current density: 8 A/dm^2 to 12 A/dm^2.

14. The method of forming an anodic oxide layer on the surface of the aluminum alloy according to Claim 13, wherein the aluminum alloy to be treated is an aluminum alloy selected from the group consisting of duralumin, an aluminum alloy for a die cast and an aluminum alloy without containing Mn.

15. The method of forming an anodic oxide layer on the surface of the aluminum alloy according to Claim 9, comprising performing the anodic oxidation treatment on a surface of an aluminum alloy containing Mn under the following conditions:

(g) bath liquid temperature: +15°C to +18°C;

(h) voltage: DC 130 V to 170 V; and

(i) current density: 8 A/dm^2 to 12 A/dm^2.

16. A method of forming an anodic oxide layer on a surface of aluminum or an aluminum alloy, as defined in Claim 9, being characterized in that, after the anodic oxide layer is formed on the surface of aluminum or the aluminum alloy, wherein silver is impregnated, by an electrolitic process, by the anodic oxide layer

by using a bath liquid which involves an aqueous solution containing 10 gr/l to 30 gr/l of silver sulfate or silver nitrate, 15 gr/l to 20 gr/l of boric acid and 1 gr/l to 2 gr/l of nickel sulfate under the following conditions:

(j) bath liquid temperature: +10°C to +20°C;

(k) voltage: AC 10 V to 15 V;

(l) current density: 1 A/dm^2 to 2 A/dm^2; and

(m) current applying period: 2 minutes to 3 minutes.

17. A method of forming an anodic oxide layer on a surface of aluminum or an aluminum alloy, as defined in Claim 10, wherein an anodic oxide layer having a thickness of 300 um to 600 um is formed on a surface of the aluminum or an aluminum alloy and, after silver impregnation according to Claim 16 is performed, a surface layer is removed by polishing by a thickness of 50 um to 100 um and, forming an ultra-hard smooth surface; said forming method having the following parameters:

(d) bath liquid temperature: -10°C to -5°C;

(e) voltage: DC 130 V to 170 V; and

(f) current density: 8 A/dm^2 to 12 A/dm^2.

18. The method of forming the anodic oxide layer on the surface of the aluminum alloy according to Claim 13, wherein the aluminum alloy to be treated is an aluminum alloy selected from the group consisting of duralumin, an aluminum alloy for a die cast and an aluminum alloy without containing Mn.

19. The method of forming the anodic oxide layer on the surface of the aluminum alloy according to Claim 9, being characterized by performing the anodic oxidation treatment on a surface of an aluminum alloy containing Mn under the following conditions:

(g) bath liquid temperature: +15°C to +18°C;

(h) voltage: DC 130 V to 170C; and

(i) current density: 8 A/dm^2 to 12 A/dm^2.

20. A method of forming an anodic oxide layer on a surface of aluminum or an aluminum alloy, as defined in Claim 9, wherein after the anodic oxide layer is formed on the surface of aluminum or the aluminum alloy, silver is impregnated in the anodic oxide layer by using a bath liquid which involves an aqueous solution containing 10gr/l to 30 gr/l of silver sulfate or silver nitrate, 15 gr/l to 20 gr/l of boric acid and 1 gr/l to 2 gr/l of nickel sulfate under the following conditions:

(j) bath liquid temperature: +10°C to +20°C;

(k) voltage: AC 10 V to 15 V;

(l) current density 1 A/dm^2 to 2 A/dm^2; and

(m) current applying period: 2 minutes to 3 minutes.

21. A method of forming an anodic oxide layer on a surface of aluminum or an aluminum alloy, as defined in Claim 9, wherein an anodic oxide layer having a thickness of 300 um to 600 um is formed on a surface of aluminum or an aluminum alloy and, after silver impregnation according to Claim 20, has been performed, a surface

layer is removed, by polishing, by a thickness of 50 um to 100 um, to produce an ultra-hard smooth surface.

22. The method of forming the anodic oxide layer on the surface of aluminum or the aluminum alloy according to Claim 12, being characterized by performing an anodic oxidation treatment under the following conditions:

(d) bath liquid temperature: -10°C to -5°C;

(e) voltage: DC 130 V to 170 V; and

(f) current density: 8 A/dm² to 12 A/dm².

23. The method of forming the anodic oxide layer on the surface of aluminum or the aluminum alloy according to Claim 11, being characterized by performing an anodic oxidation treatment under the following conditions:

(d) bath liquid temperature: -10°C to -5°C;

(e) voltage: DC 130 V to 170 V; and

(f) current density: 8 A/dm² to 12 A/dm².

24. The method of forming the anodic oxide layer on the surface of the aluminum alloy according to Claim 10, being characterized by performing the anodic oxidation treatment on a surface of an aluminum alloy containing Mn under the following conditions:

(g) bath liquid temperature: +15°C to +18°C;

(h) voltage: DC 130 V to 170 V; and

(i) current density: 8 A/dm² to 12 A/dm².

25. The method of forming the anodic oxide layer on the surface of the aluminum alloy according to Claim 11, being characterized by performing the anodic oxidation treatment on a surface of an aluminum alloy containing Mn under the following conditions:

(g) bath liquid temperature: +15°C to +18°C;

(h) voltage: DC 130 V to 170 V; and

(i) current density: 8 A/dm^2 to 12 A/dm^2.

26. A method of forming an anodic oxide layer on a surface of aluminum or an aluminum alloy, as defined in Claim 15, being characterized in that an anodic oxide layer having a thickness of 300 um to 600 um is formed on a surface of aluminum or an aluminum alloy and, after silver impregnation according to Claim 16 is performed, a surface layer is removed by polishing by a thickness of 50 um to 100 um and, then, an ultra-hard smooth surface is obtained.

27. A method of forming an anodic oxide layer on a surface of aluminum or an aluminum alloy, as defined in Claim 13, being characterized in that an anodic oxide layer having a thickness of 300 um to 600 um is formed on a surface of aluminum or an aluminum alloy, and, after silver impregnation according to Claim 16 is performed, a surface layer is removed by polishing by a thickness of 50 um to 100 um to provide an ultra-hard smooth surface.

28. A method of forming an anodic oxide layer on a surface of aluminum or an aluminum alloy, as defined in Claim 10, being characterized in that an anodic oxide layer having a thickness of 300 um to 600 um is formed on a surface of aluminum or an aluminum alloy, and, after silver impregnation according to Claim 16 is performed, a surface layer is removed by polishing by a thickness of 50 um to 100 um producing an ultra-hard smooth surface.